

What is claimed is:

1. A variable flow-rate ejector comprising:
  - a body;
  - a nozzle having a head and a base, each of which has an opening, wherein the nozzle ejects a first fluid from the opening at the head;
  - 5 a diffuser whose central axis coincides with that of the nozzle, wherein a second fluid is drawn into the diffuser due to a negative pressure produced around the first fluid ejected by the nozzle, and the second fluid is entrained with the first fluid and the mixed fluid is output;
  - a needle inserted into the nozzle, wherein the central axis of the needle
  - 10 coincides with that of the nozzle and the needle is movable along the central axis;
  - a first diaphragm whose peripheral portion is supported by the body and which is provided for closing the opening at the base of the nozzle, wherein the first diaphragm is attached to the needle and is movable along the central axis of the needle;
  - a second diaphragm whose peripheral portion is supported by the body and
  - 15 which is arranged at a distance from the first diaphragm, wherein the second diaphragm is attached to the needle and is movable along the central axis of the needle;
  - a third-fluid chamber formed by the first diaphragm, the second diaphragm, and the body and arranged adjacent to the inside of the nozzle via the first diaphragm, wherein the first fluid is supplied to the nozzle and a third fluid is supplied to the
  - 20 third-fluid chamber; and
  - a fourth-fluid chamber formed by the second diaphragm and the body and arranged adjacent to the third-fluid chamber via the second diaphragm, wherein a fourth fluid is supplied to the fourth-fluid chamber, wherein:

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an area of an opening around the needle in the opening at the head of the nozzle  
 25 is changed by displacement of the needle along the central axis according to movement  
 of the first and second diaphragms which move in accordance with the pressure  
 produced by the first fluid, the third fluid, and the fourth fluid.

2. A variable flow-rate ejector as claimed in claim 1, further comprising:  
 a passage for supplying the mixed fluid, which is output by the diffuser, to the  
 fourth-fluid chamber as the fourth fluid.

3. A fuel cell system including a variable flow-rate ejector as claimed in claim 1,  
 comprising a fuel cell which has an anode and a cathode, and a fuel supply section for  
 supplying fuel to the fuel cell, wherein:

the first fluid is fuel supplied to the anode from the fuel supply section; and  
 5 the second fluid is fuel discharged from the fuel cell.

4. A fuel cell system as claimed in claim 3, further comprising an oxidizing gas  
 supply section for supplying an oxidizing gas to the fuel cell, wherein:

the third fluid is an oxidizing gas supplied to the cathode of the fuel cell from  
 the oxidizing gas supply section; and  
 5 the fourth fluid is a mixture of the first fluid and the second fluid, which is  
 output by the diffuser.

5. A fuel cell system as claimed in claim 4, wherein:  
 the fuel supply section supplies the fuel based on a value of the pressure  
 obtained by adding a predetermined pressure to the pressure of the oxidizing gas; and

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- the ratio of the area of the first diaphragm to the area of the second diaphragm
- 5 is determined based on the predetermined pressure and a differential pressure between a pressure applied to the anode and a pressure applied to the cathode of the fuel cell.

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